

SEQUENCE LISTING

<110> E. I. du Pont de Nemours and Company
<120> Plant Glutamine Amidotransferase Homologs
<130> BB1129
<140>
<141>
<150> 60/107,275
<151> 1998-11-05
<160> 15
<170> Microsoft Office 97
<210> 1
<211> 1956
<212> DNA
<213> Impatiens balsamia

<400> 1
gcacgagaag gaactggcaa gtaccaagcc acagaatggg ttcagaattc gcgcccgcctt 60
ggctgggtgca ggcggagatt ctgtgggtgac tttacttgat tacgggtgctg gaaatgttag 120
gagtggtgagg aacgccatcc gcacacttgg atttgatata aaagatgtgc aaaagccaga 180
ggatatttcta aatgctaagc gccttatctt tcctggcggtt ggggcctttg cacctgcaat 240
ggatgttctt attcgtaaaag ggctgggtga agcactctgt acttacattc agaatgatcg 300
acctttcctg ggtatatgcc tgggattgca gctactcttt gagtcaagtg aagaaaatgg 360
tccaattcaa ggtcttggct tgattcctgg acgggttggg cgttttgaat catccaatgg 420
tttaaggggt ccacatatgt gatggcatgc cttggatata aaggaagggt cagcaatttt 480
agatgatgtg gggaatcaac atgtgtattt tgttcactca tatcgagcca atgccgagga 540
caacaaagag tggatttcat ctacatgcag ctatggtgac gattttattg catccattca 600
gaaggggaaat gttcatgcag tccaatttca tcccagagaag agtggagggt ttggactttc 660
catattgaga agatttttga atgctgattc ctttaacaac aaaagacaga agccaatgaa 720
tggaagggtt tctaaacttg caaagagagt aattgcttgc cttgatgtga gggcaaatga 780
taatggggat cttgttgtaa ccaagggaga ccaatatgat gtgagagaac gtacagaaga 840
gaatgaggtc agaaacctg gcaagcctgt tgaacttgcg gggcagtatt atttagacgg 900
tgctgatgtg gtcagcttct taaacattac tgggttccgg gacttccctc taggcgatct 960
acccatgcta caggctctgc aacgcgcctc tgaaaacggt tttgtgccat taactgtcgg 1020
gggtggcatc agggatttta ctgatgcaaa tgggaaggat tattctagtc tagaagtggc 1080
ttcagagtat ttcagatcgg gcgccgataa ggtttcgcac ggaagtgatg cagtttacac 1140
tgctgaggaa tatattaaaa ccggagtgaa gacaggaaaag agcagcatag agcagatata 1200
tacagtatat ggtaaccagg cagtgggtgt aagcattgat cctcgccgag tttacttgag 1260
aaaacccgat gaagtagaat ttaaagccat caaagtaagc catccagggtc caaacgggtga 1320
ggaatatgcc tggatcagc gcaactgtta tgggtggacga gaaggagac ccacgggagc 1380
ttatgaacta gctaaggctg ttgagggaact tggagctgga gaaatattat tgaactgcat 1440
tgattgtgat ggtcaaggaa aaggattcga tatagatctg atcaagctaa tatccgatgc 1500
tgtgaacatt cctgttatcg caagcagcgg tgcaggagtc gctgatcact tctccgaagt 1560
ctttaatgaa accaagcat ctgctgccct tgcagctggc attttccatc gcaaagagggt 1620
tccaattaag gctgttaaaag agcacttggt gaaggaaggg attgaagtta gattgtaagg 1680
cgagaatcac ttggaagaaa ttcatcttg aagttcaatt ttgttacaca agagatttcc 1740
ttctttcttg gcctatgtga tatttattta tttatgtttt gctattgaat tattgttatt 1800
attattttgg catttggttat ttgaatagat ttgagttttt agaccttggg gtgtcctggt 1860
tatctctagg ccattgtttg tggatttatat acaagtgatga aattaaataa ataaatcgta 1920
tgaatttatg cttttaaaaa aaaaaaaaaa aaaaaa 1956

<210> 2
<211> 558

<212> PRT

<213> Impatiens balsamia

<400> 2

His Glu Lys Glu Leu Ala Ser Thr Lys Pro Gln Asn Gly Phe Arg Ile
 1 5 10 15
 Arg Ala Ala Leu Ala Gly Ala Gly Gly Asp Ser Val Val Thr Leu Leu
 20 25 30
 Asp Tyr Gly Ala Gly Asn Val Arg Ser Val Arg Asn Ala Ile Arg Thr
 35 40 45
 Leu Gly Phe Asp Ile Lys Asp Val Gln Lys Pro Glu Asp Ile Leu Asn
 50 55 60
 Ala Lys Arg Leu Ile Phe Pro Gly Val Gly Ala Phe Ala Pro Ala Met
 65 70 75 80
 Asp Val Leu Ile Arg Lys Gly Leu Ala Glu Ala Leu Cys Thr Tyr Ile
 85 90 95
 Gln Asn Asp Arg Pro Phe Leu Gly Ile Cys Leu Gly Leu Gln Leu Leu
 100 105 110
 Phe Glu Ser Ser Glu Glu Asn Gly Pro Ile Gln Gly Leu Gly Leu Ile
 115 120 125
 Pro Gly Arg Val Gly Arg Phe Glu Ser Ser Asn Gly Leu Arg Val Pro
 130 135 140
 His Ile Gly Trp His Ala Leu Asp Ile Lys Glu Gly Ser Ala Ile Leu
 145 150 155 160
 Asp Asp Val Gly Asn Gln His Val Tyr Phe Val His Ser Tyr Arg Ala
 165 170 175
 Asn Ala Glu Asp Asn Lys Glu Trp Ile Ser Ser Thr Cys Ser Tyr Gly
 180 185 190
 Asp Asp Phe Ile Ala Ser Ile Gln Lys Gly Asn Val His Ala Val Gln
 195 200 205
 Phe His Pro Glu Lys Ser Gly Gly Val Gly Leu Ser Ile Leu Arg Arg
 210 215 220
 Phe Leu Asn Ala Asp Ser Phe Asn Asn Lys Arg Gln Lys Pro Met Asn
 225 230 235 240
 Gly Lys Ala Ser Lys Leu Ala Lys Arg Val Ile Ala Cys Leu Asp Val
 245 250 255
 Arg Ala Asn Asp Asn Gly Asp Leu Val Val Thr Lys Gly Asp Gln Tyr
 260 265 270
 Asp Val Arg Glu Arg Thr Glu Glu Asn Glu Val Arg Asn Leu Gly Lys
 275 280 285
 Pro Val Glu Leu Ala Gly Gln Tyr Tyr Leu Asp Gly Ala Asp Glu Val
 290 295 300

Ser Phe Leu Asn Ile Thr Gly Phe Arg Asp Phe Pro Leu Gly Asp Leu
 305 310 315 320
 Pro Met Leu Gln Val Leu Gln Arg Ala Ser Glu Asn Val Phe Val Pro
 325 330 335
 Leu Thr Val Gly Gly Gly Ile Arg Asp Phe Thr Asp Ala Asn Gly Arg
 340 345 350
 Tyr Tyr Ser Ser Leu Glu Val Ala Ser Glu Tyr Phe Arg Ser Gly Ala
 355 360 365
 Asp Lys Val Ser Ile Gly Ser Asp Ala Val Tyr Thr Ala Glu Glu Tyr
 370 375 380
 Ile Lys Thr Gly Val Lys Thr Gly Lys Ser Ser Ile Glu Gln Ile Ser
 385 390 395 400
 Thr Val Tyr Gly Asn Gln Ala Val Val Val Ser Ile Asp Pro Arg Arg
 405 410 415
 Val Tyr Leu Arg Lys Pro Asp Glu Val Glu Phe Lys Ala Ile Lys Val
 420 425 430
 Ser His Pro Gly Pro Asn Gly Glu Glu Tyr Ala Trp Tyr Gln Cys Thr
 435 440 445
 Val Asn Gly Gly Arg Glu Gly Arg Pro Ile Gly Ala Tyr Glu Leu Ala
 450 455 460
 Lys Ala Val Glu Glu Leu Gly Ala Gly Glu Ile Leu Leu Asn Cys Ile
 465 470 475 480
 Asp Cys Asp Gly Gln Gly Lys Gly Phe Asp Ile Asp Leu Ile Lys Leu
 485 490 495
 Ile Ser Asp Ala Val Asn Ile Pro Val Ile Ala Ser Ser Gly Ala Gly
 500 505 510
 Val Ala Asp His Phe Ser Glu Val Phe Asn Glu Thr Asn Ala Ser Ala
 515 520 525
 Ala Leu Ala Ala Gly Ile Phe His Arg Lys Glu Val Pro Ile Lys Ala
 530 535 540
 Val Lys Glu His Leu Leu Lys Glu Gly Ile Glu Val Arg Leu
 545 550 555

<210> 3
 <211> 587
 <212> DNA
 <213> Zea mays

<220>
 <221> unsure
 <222> (495)

<220>
 <221> unsure
 <222> (518)

<220>
 <221> unsure
 <222> (577)

<220>
 <221> unsure
 <222> (582)

<400> 3
 aagaaaaggc ccgctagggc gccgagacag cggaacgttc tctgagtttg agcacgatct 60
 ccccgggccc cggcgccgcc gtacgtcccc cttcggcgctc gccagccgcc tcctggctcc 120
 ggctccttca tcgcctgctc cagcgtgcct gcgtgacata agcgtcgatt gattggcgag 180
 aaaggggacg aatgcagccg ccgttgacag cgcaggagc aatggctaac gtcgccgcta 240
 tcctcaccgt cccctgctcc gcgggcccgc gcccgaaagc gagcaaccag ccccgccgat 300
 gcggctccgt ctccgtctcc gtctccgtcc gtgcgtcctc cggcgcaaac acggtgactc 360
 tgctggacta cggcgcgggg aacgtacgca gcgtgcgcaa cgcaattcgc tacctcggct 420
 tcgacatccg cgacgtgcag agcccggarg acatcgtcgc cggcggaayg ggctcgtctt 480
 cccggtgtcg gcgnttcgg ctccgccatg gacgtccnca ccaggacggg catgccaaacg 540
 cactccgtga qtacatccaa agggaacgcc ccttccnagg cnctgcc 587

<210> 4
 <211> 130
 <212> PRT
 <213> Zea mays

<220>
 <221> UNSURE
 <222> (90)

<220>
 <221> UNSURE
 <222> (93)

<220>
 <221> UNSURE
 <222> (109)

<220>
 <221> UNSURE
 <222> (115)

<220>
 <221> UNSURE
 <222> (129)

<400> 4
 Met Gln Pro Pro Leu Gln Ala Gln Gly Ala Met Ala Asn Val Ala Ala
 1 5 10 15
 Ile Leu Thr Val Pro Cys Ser Ala Gly Arg Arg Pro Lys Arg Ser Asn
 20 25 30
 Gln Pro Arg Gly Cys Gly Ser Val Ser Val Ser Val Ser Val Arg Ala
 35 40 45

Ser Ser Gly Ala Asn Thr Val Thr Leu Leu Asp Tyr Gly Ala Gly Asn
50 55 60

Val Arg Ser Val Arg Asn Ala Ile Arg Tyr Leu Gly Phe Asp Ile Arg
65 70 75 80

Asp Val Gln Ser Pro Glu Asp Ile Val Xaa Ala Glu Xaa Val Val Phe
85 90 95

Pro Gly Val Gly Ala Phe Gly Ser Ala Met Asp Val Xaa Thr Arg Thr
100 105 110

Gly Met Xaa Asn Ala Leu Arg Glu Tyr Ile Gln Arg Glu Arg Pro Phe
115 120 125

Xaa Gly
130

<210> 5
<211> 1084
<212> DNA
<213> Zea mays

<400> 5
actagtggta acaaaaggcg atcaatatga tgtaagagat catactagca gcaaagaggt 60
aagaaaacctt ggcaagccag tcgatttagc aagccagtac tacatagacg gtgctgatga 120
ggtcagcttc ttgaatataa ctggtttccg tgactttcca ttgggtgatt tgccaatgct 180
agaggtactg cgttggtgcct ctgaaaagggt ttttgtgccca cttacagttg gtgggggcat 240
acgagacttc acagatgcaa atggaagata ctactcaagt ttggaggtag catcagaata 300
tttcagggtcc ggtgctgaca aaatttcaat tggaagtgat gctgtttatg ctgctgaagc 360
ctttttacag actggtgtaa agacagggaa aagcagcttg gagcaaactc ctagagtata 420
tggcaatcag gctgtagtgg tcagtattga tcctcgacgg gtatatgtca aaagtcaaga 480
agatgtgccca tttaaaactg taaagggtgtc cactaaagggt ccatcgggag aagaatatgc 540
atggtaccag tgcacagtga atggtggacg tgatagccga gctataggag catatgaact 600
agcgaagct gtggaagaat tgggcgcagg agaaatactt cttaactgca ttgattgtga 660
tggccaagggt tgtggatttg acatagattt gggttaaaatg gtttctgatg ctgtgacaat 720
ccctgtcatt gcgagcagtg gtgctggagc tgttcaacat ttttctgaaa tttttgagaa 780
aacaatgct tctgctgccc ttgctgctgg cattttccac cggaagaggg ttcctatact 840
agcagtgaag gagcatctgg tcaatgctgg tgtggaggtc aggggtgaac agggagatcc 900
ttcggtttat tgaaatattc ttgtttgatg tcacaactgc tatcagttct gtttctctga 960
tgtcgcaact gctatcagat ctgttggtgg cagctggcag tgcataggcc cctgtcgaga 1020
actgcagttt ggtaataaat taataatgtg atgcttaaca gattaaaaaa aaaaaaaaaa 1080
aaaa 1084

<210> 6
<211> 295
<212> PRT
<213> Zea mays

<400> 6
Leu Val Val Thr Lys Gly Asp Gln Tyr Asp Val Arg Asp His Thr Ser
1 5 10 15

Ser Lys Glu Val Arg Asn Leu Gly Lys Pro Val Asp Leu Ala Ser Gln
20 25 30

Tyr Tyr Ile Asp Gly Ala Asp Glu Val Ser Phe Leu Asn Ile Thr Gly
35 40 45

Phe Arg Asp Phe Pro Leu Gly Asp Leu Pro Met Leu Glu Val Leu Arg
 50 55 60
 Cys Ala Ser Glu Lys Val Phe Val Pro Leu Thr Val Gly Gly Gly Ile
 65 70 75 80
 Arg Asp Phe Thr Asp Ala Asn Gly Arg Tyr Tyr Ser Ser Leu Glu Val
 85 90 95
 Ala Ser Glu Tyr Phe Arg Ser Gly Ala Asp Lys Ile Ser Ile Gly Ser
 100 105 110
 Asp Ala Val Tyr Ala Ala Glu Ala Phe Leu Gln Thr Gly Val Lys Thr
 115 120 125
 Gly Lys Ser Ser Leu Glu Gln Ile Ser Arg Val Tyr Gly Asn Gln Ala
 130 135 140
 Val Val Val Ser Ile Asp Pro Arg Arg Val Tyr Val Lys Ser Gln Glu
 145 150 155 160
 Asp Val Pro Phe Lys Thr Val Lys Val Ser Thr Lys Gly Pro Ser Gly
 165 170 175
 Glu Glu Tyr Ala Trp Tyr Gln Cys Thr Val Asn Gly Gly Arg Asp Ser
 180 185 190
 Arg Ala Ile Gly Ala Tyr Glu Leu Ala Lys Ala Val Glu Glu Leu Gly
 195 200 205
 Ala Gly Glu Ile Leu Leu Asn Cys Ile Asp Cys Asp Gly Gln Gly Cys
 210 215 220
 Gly Phe Asp Ile Asp Leu Val Lys Met Val Ser Asp Ala Val Thr Ile
 225 230 235 240
 Pro Val Ile Ala Ser Ser Gly Ala Gly Ala Val Gln His Phe Ser Glu
 245 250 255
 Ile Phe Glu Lys Thr Asn Ala Ser Ala Ala Leu Ala Ala Gly Ile Phe
 260 265 270
 His Arg Lys Glu Val Pro Ile Leu Ala Val Lys Glu His Leu Val Asn
 275 280 285
 Ala Gly Val Glu Val Arg Val
 290 295

<210> 7
 <211> 494
 <212> DNA
 <213> Zea mays

<220>
 <221> unsure
 <222> (6)

<220>
 <221> unsure
 <222> (12)

<220>
<221> unsure
<222> (43)

<220>
<221> unsure
<222> (56)

<220>
<221> unsure
<222> (60)

<220>
<221> unsure
<222> (154)..(155)

<220>
<221> unsure
<222> (161)

<220>
<221> unsure
<222> (163)

<220>
<221> unsure
<222> (166)

<220>
<221> unsure
<222> (202)

<220>
<221> unsure
<222> (215)

<220>
<221> unsure
<222> (266)

<220>
<221> unsure
<222> (271)

<220>
<221> unsure
<222> (274)..(275)

<220>
<221> unsure
<222> (277)

<220>
<221> unsure
<222> (306)

<220>
<221> unsure
<222> (320)

<220>
 <221> unsure
 <222> (346) .. (347)

<220>
 <221> unsure
 <222> (356)

<220>
 <221> unsure
 <222> (393)

<220>
 <221> unsure
 <222> (434)

<220>
 <221> unsure
 <222> (441)

<220>
 <221> unsure
 <222> (456)

<220>
 <221> unsure
 <222> (466)

<220>
 <221> unsure
 <222> (474)

<400> 7
 tcgggncccg gngattcccg gggtcgagcc aacgggtccg gtnctcaaa caaggncggn 60
 catggtcaac gcaactccgt ggagtatatc caagagggac cggccccttc ctaggcatct 120
 gcctcggtct ccagctgctc ttcggattcc agcnnggaga nanggnccgt gtgagcggac 180
 tcggtgtgat atcaggcgtg gncaggcgat tcganticctc aaatggcctc atagttccac 240
 atgttggtg gaacgctctc cagatnacca nggnnanacc actgttgag ggagctgatg 300
 gccagnatgt gtacttttgn tcactcctac cgcgtactgg cttcanngtg ctagtnagga 360
 aactgggggt tcctccatat ggcaactatg ggngacagct tttaatcctc catctcaa 420
 ggggcaacat tcanggcaag ntcaaatttc acccangaaa agagtnggaa gctncccg 480
 actttcctat tcct 494

<210> 8
 <211> 86
 <212> PRT
 <213> Zea mays

<220>
 <221> UNSURE
 <222> (23)

<220>
 <221> UNSURE
 <222> (25) .. (26) .. (27)

<220>
 <221> UNSURE
 <222> (39)

<220>
 <221> UNSURE
 <222> (43)

<220>
 <221> UNSURE
 <222> (60)

<220>
 <221> UNSURE
 <222> (62)..(63)..(64)

<220>
 <221> UNSURE
 <222> (74)

<220>
 <221> UNSURE
 <222> (78)

<400> 8
 Tyr Pro Arg Gly Thr Gly Pro Phe Leu Gly Ile Cys Leu Gly Leu Gln
 1 5 10 15
 Leu Leu Phe Gly Phe Gln Xaa Gly Xaa Xaa Xaa Arg Val Ser Gly Leu
 20 25 30
 Gly Val Ile Ser Gly Val Xaa Arg Arg Phe Xaa Ser Ser Asn Gly Leu
 35 40 45
 Ile Val Pro His Val Gly Trp Asn Ala Leu Gln Xaa Thr Xaa Xaa Xaa
 50 55 60
 Pro Leu Leu Gln Gly Ala Asp Gly Gln Xaa Val Tyr Phe Xaa His Ser
 65 70 75 80
 Tyr Arg Val Leu Ala Ser
 85

<210> 9
 <211> 495
 <212> DNA
 <213> Oryza sativa

<220>
 <221> unsure
 <222> (125)

<220>
 <221> unsure
 <222> (266)

<220>
 <221> unsure
 <222> (315)

<220>
 <221> unsure
 <222> (366)

<220>
 <221> unsure
 <222> (405)

<220>
 <221> unsure
 <222> (441)

<220>
 <221> unsure
 <222> (443)

<220>
 <221> unsure
 <222> (445)

<220>
 <221> unsure
 <222> (453)

<220>
 <221> unsure
 <222> (458)

<220>
 <221> unsure
 <222> (461)

<220>
 <221> unsure
 <222> (475)

<220>
 <221> unsure
 <222> (480)

<220>
 <221> unsure
 <222> (492)

<220>
 <221> unsure
 <222> (494)

<400> 9
 gacacacacc ccccatactg ccacaagggc cgccgcccgc gccgggagcg atggtcgccg 60
 ccacctccat caacgccgtc ccctgctcgc ctggtcggcc gaagcggagg agccagcgcc 120
 gcgnggcctc tacggtcgcc gtgcgcgcgt ccggcgacgc tagcacctg acgctgctgg 180
 actacggcgc gggcaacgtg cgcagcgtgc gcaatgccat ccgccacctc ggtttcggca 240
 tccgcgacgt gcgcagcccc gagganatcc tcgcccgcga ccgcctcgtc ttcccggggg 300
 tcggcgcctt cgggntcaag ccatggacgt cctcaaccgc ctccgggatg ggcggacgcg 360
 cttccncgga gtacatccgc caggggaccg ccccttccct cgggnatctg gccttcgggg 420
 cttccaagct tctccttcgc nantnctaag ggnaaggag naattggccc cggtnaggcn 480
 gggcttgagg tntnt 495

<210> 10
 <211> 87
 <212> PRT
 <213> Oryza sativa

<220>

<221> UNSURE

<222> (72)

<400> 10

Met Val Ala Ala Thr Ser Ile Asn Ala Val Pro Cys Ser Ala Gly Arg
 1 5 10 15

Pro Lys Arg Arg Ser Gln Arg Arg Gly Ala Ser Thr Val Ala Val Arg
 20 25 30

Ala Ser Gly Asp Ala Ser Thr Val Thr Leu Leu Asp Tyr Gly Ala Gly
 35 40 45

Asn Val Arg Ser Val Arg Asn Ala Ile Arg His Leu Gly Phe Gly Ile
 50 55 60

Arg Asp Val Arg Ser Pro Glu Xaa Ile Leu Ala Ala Asp Arg Leu Val
 65 70 75 80

Phe Pro Gly Val Gly Ala Phe
 85

<210> 11

<211> 178

<212> DNA

<213> Glycine max

<400> 11

ttgtgacttt gcttgattac ggtgctggca atgttcggag tgtcaggaat gcaatcagat 60
 tcctcggtt tgacataaaa gatgtgcaaa ctccgcaaga tattctgaat gcaagtcggt 120
 tagtttttcc tgggtgttga gcatttgctg ctgccatgga ggtgttaagc aaaactgg 178

<210> 12

<211> 58

<212> PRT

<213> Glycine max

<400> 12

Val Thr Leu Leu Asp Tyr Gly Ala Gly Asn Val Arg Ser Val Arg Asn
 1 5 10 15

Ala Ile Arg Phe Leu Gly Phe Asp Ile Lys Asp Val Gln Thr Pro Gln
 20 25 30

Asp Ile Leu Asn Ala Ser Arg Leu Val Phe Pro Gly Val Gly Ala Phe
 35 40 45

Ala Ala Ala Met Glu Val Leu Ser Lys Thr
 50 55

<210> 13

<211> 671

<212> DNA

<213> Glycine max

<220>

<221> unsure

<222> (276)

<400> 13
gtatgtaaag gatcctaatt atgtgcaatt gaagaccata agggtttcaa gtccaggttc 60
aaatggagag gaatatgcat ggtatcaatg tacagttaat gggggacgag agggccggcc 120
aattgggtgct tatgaactag caaaagcagt tgaagagctt ggtgctggtg aaatactact 180
taattgcatt gattgcgacg gtcaagggaa aggatttgat gtagatttaa ttaagttgat 240
atcaaatgct gtaagtatcc ctgttatcgc aagtancggt gctggtgctc ctgaacactt 300
ctctgaggtg ttctataaaa caaatgcatac agcagcactt gctgctggca tttttcacag 360
gaaagaggtg cctattcagt cggtaaaaga gcatttggtg aaggaaggca tagaagttcg 420
aatctgatca tatgcattta gtggtaaaat ttttgagatg cacttcataa taatcaaacc 480
ttgtacgtta tccctttttg tgtaatctaa cgaagctctc aaaatgtcaa ccttttggat 540
catgaaaaga ttttcacaac gagacctttc ctttgtaata tttttaagga aaatatattt 600
accatgtgca gcactatctc tgaacatttg ttattacaaa attatttcat gtgtcaaaaa 660
aaaaaaaaa a 671

<210> 14
<211> 141
<212> PRT
<213> Glycine max

<220>
<221> UNSURE
<222> (92)

<400> 14
Tyr Val Lys Asp Pro Asn Asp Val Gln Leu Lys Thr Ile Arg Val Ser
1 5 10 15
Ser Pro Gly Ser Asn Gly Glu Glu Tyr Ala Trp Tyr Gln Cys Thr Val
20 25 30
Asn Gly Gly Arg Glu Gly Arg Pro Ile Gly Ala Tyr Glu Leu Ala Lys
35 40 45
Ala Val Glu Glu Leu Gly Ala Gly Glu Ile Leu Leu Asn Cys Ile Asp
50 55 60
Cys Asp Gly Gln Gly Lys Gly Phe Asp Val Asp Leu Ile Lys Leu Ile
65 70 75 80
Ser Asn Ala Val Ser Ile Pro Val Ile Ala Ser Xaa Gly Ala Gly Ala
85 90 95
Pro Glu His Phe Ser Glu Val Phe Tyr Lys Thr Asn Ala Ser Ala Ala
100 105 110
Leu Ala Ala Gly Ile Phe His Arg Lys Glu Val Pro Ile Gln Ser Val
115 120 125
Lys Glu His Leu Leu Lys Glu Gly Ile Glu Val Arg Ile
130 135 140

<210> 15
<211> 593
<212> PRT
<213> Arabidopsis thaliana

<400> 15
Met Glu Ala Thr Ala Ala Pro Phe Ser Ser Ile Val Ser Ser Arg Gln
1 5 10 15

Asn Phe Ser Ser Ser Ser Ser Ile Arg Ala Ser Ser Pro Ala Ser Leu
 20 25 30
 Phe Leu Ser Gln Lys Ser Ile Gly Asn Val Asn Arg Lys Phe Lys Ser
 35 40 45
 Pro Arg Ser Leu Ser Val Arg Ala Ser Ser Thr Ser Asp Ser Val Val
 50 55 60
 Thr Leu Leu Asp Tyr Gly Ala Gly Asn Val Arg Ser Ile Arg Asn Ala
 65 70 75 80
 Leu Arg His Leu Gly Phe Ser Ile Lys Asp Val Gln Thr Pro Gly Asp
 85 90 95
 Ile Leu Asn Ala Asp Arg Leu Ile Phe Pro Gly Val Gly Pro Phe Ala
 100 105 110
 Pro Ala Met Asp Val Leu Asn Arg Thr Gly Met Ala Glu Ala Leu Cys
 115 120 125
 Lys Tyr Ile Glu Asn Asp Arg Pro Phe Leu Gly Ile Cys Leu Gly Leu
 130 135 140
 Gln Leu Leu Phe Asp Ser Ser Glu Gln Asn Gly Pro Val Lys Gly Leu
 145 150 155 160
 Gly Val Ile Pro Gly Ile Val Gly Arg Phe Asp Ala Ser Ala Gly Ile
 165 170 175
 Arg Val Pro His Ile Gly Trp Asn Ala Leu Gln Val Gly Lys Asp Ser
 180 185 190
 Glu Ile Leu Asp Asp Val Gly Asn Arg His Val Tyr Phe Val His Ser
 195 200 205
 Tyr Arg Ala Ile Pro Ser Asp Glu Asn Lys Asp Trp Ile Ser Ser Thr
 210 215 220
 Cys Asn Tyr Gly Glu Ser Phe Ile Ser Ser Ile Arg Arg Gly Asn Val
 225 230 235 240
 His Ala Val Gln Phe His Pro Glu Lys Ser Gly Glu Val Gly Leu Ser
 245 250 255
 Val Leu Arg Arg Phe Leu His Pro Lys Leu Pro Ala Thr Gln Lys Pro
 260 265 270
 Met Glu Gly Lys Ala Ser Lys Leu Ala Lys Arg Val Ile Ala Cys Leu
 275 280 285
 Asp Val Arg Thr Asn Asp Lys Gly Asp Leu Val Val Thr Lys Gly Asp
 290 295 300
 Gln Tyr Asp Val Arg Glu Gln Ser Asn Glu Asn Glu Val Arg Asn Leu
 305 310 315 320
 Gly Lys Pro Val Asp Leu Ala Gly Gln Tyr Tyr Lys Asp Gly Ala Asp
 325 330 335

Glu Ile Ser Phe Leu Asn Ile Thr Gly Phe Arg Asp Phe Pro Leu Gly
 340 345 350
 Asp Leu Pro Met Ile Gln Val Leu Arg Gln Thr Ser Lys Asn Val Phe
 355 360 365
 Val Pro Leu Thr Val Gly Gly Gly Ile Arg Asp Phe Thr Asp Ala Ser
 370 375 380
 Gly Arg Tyr Tyr Ser Ser Leu Glu Val Ala Ala Glu Tyr Phe Arg Ser
 385 390 395 400
 Gly Ala Asp Lys Met Ser Ile Gly Ser Asp Ala Val Phe Ala Ala Glu
 405 410 415
 Glu Phe Ile Lys Ser Gly Val Lys Thr Gly Lys Ser Ser Leu Glu Gln
 420 425 430
 Ile Ser Arg Val Tyr Gly Asn Gln Ala Val Val Val Ser Ile Asp Pro
 435 440 445
 Arg Arg Val Tyr Val Asn His Pro Asp Asp Val Pro Tyr Lys Val Ile
 450 455 460
 Arg Val Thr Asn Pro Gly Pro Asn Gly Glu Glu Tyr Ala Trp Tyr Gln
 465 470 475 480
 Cys Thr Val Ser Gly Gly Gln Glu Gly Arg Pro Ile Gly Ala Phe Glu
 485 490 495
 Leu Ala Lys Ala Val Glu Glu Leu Gly Ala Gly Glu Ile Leu Leu Asn
 500 505 510
 Cys Ile Asn Cys Asp Gly Gln Gly Lys Gly Phe Asp Ile Asp Leu Val
 515 520 525
 Lys Leu Ile Ser Asp Ser Val Gly Ile Pro Val Ile Ala Ser Ser Gly
 530 535 540
 Ala Gly Thr Pro Asp His Phe Ser Glu Val Phe Glu Glu Asp Lys Arg
 545 550 555 560
 Ile Cys Arg Ala Cys Cys Arg His Phe Pro Pro Glu Arg Gly Tyr Gln
 565 570 575
 Ser Gln Ser Val Lys Glu His Leu Gln Glu Glu Arg Ile Glu Val Arg
 580 585 590
 Ile